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Financing PPP/PSP Options for Rolling Stock in CAREC

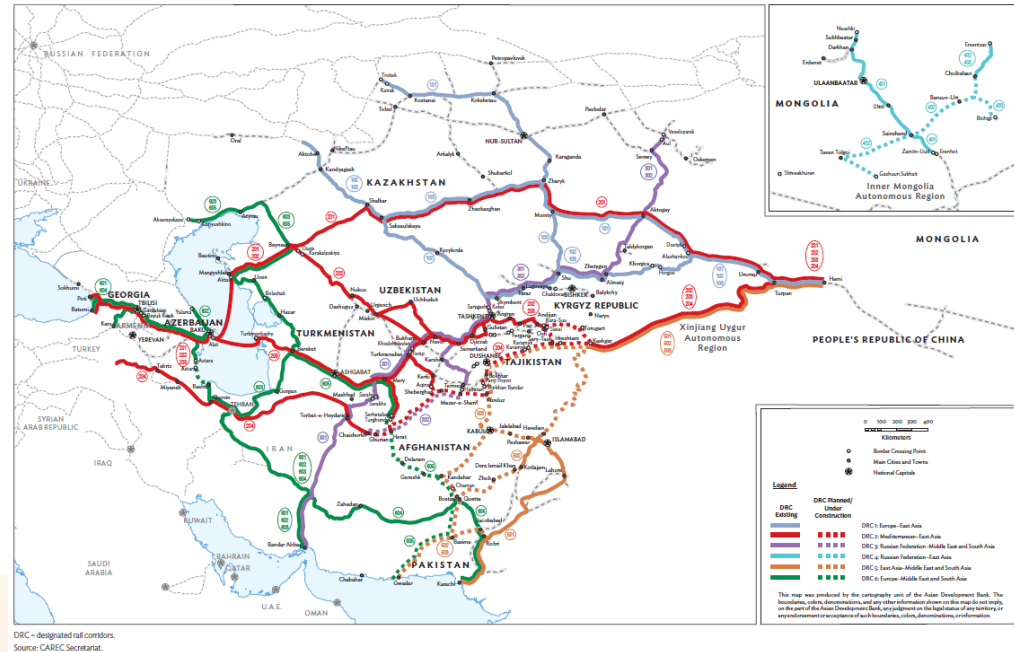
A study commissioned by the Asian Development Bank (ADB)

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May 2024*



Study Context

- CAREC's rail network inherited from the Soviet times, albeit extensive, is unevenly distributed.
- Uzbekistan and Kazakhstan have the most well-developed railway infrastructure systems and hence attract the most freight and passenger flows through their territories.
- Although study aims to cover all CAREC member states to equal extent, these infrastructure irregularities and the availability of data and information place more emphasis on the member states with developed railway systems, Uzbekistan being one of them.



High-Level Demand And Efficiency Analysis



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High-Level Demand and Efficiency Analysis (1/3)

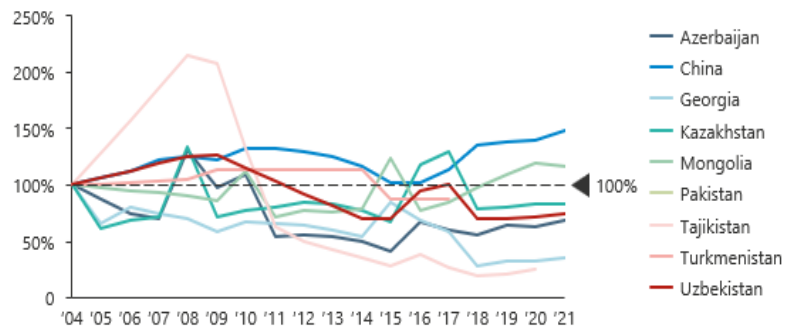
There is no evidence to conclude that there is a dire and immediate deficit of rolling stock in the CAREC region

- **National protectionism** measures such as limited free sharing of freight wagons and wagon picking up loads, lead to inefficient use of wagons and main line capacity → **temporary wagon shortages** across CAREC.
- Discontinuing protectionary measures and improving railway efficiency can **enhance** railway transport capacity **without major investments**.
- Market demand for rail transportation hinges on railway performance factors like **speed, reliability, and efficiency**.
- Anticipated increases in highway lengths in CAREC countries may lead to a **shift in demand toward road transport** if railways don't address availability, reliability, and efficiency concerns promptly.
- **Efficiency and reform** of railway organizations and processes are essential to meet the evolving demand and competition from other modes of transport within CAREC countries.

High-Level Demand And Efficiency Analysis (2/3)

Freight

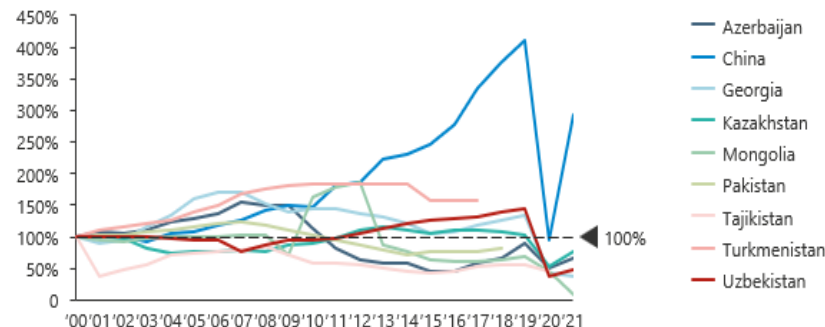
CAREC rail freight t-km volume growth (% , 2004-2021)



*For Tajikistan and Turkmenistan no data is available from respectively 2017 and 2020 onwards

Passenger

CAREC passenger-km traffic growth (% , 2000-2021)



*For Pakistan and Turkmenistan no data is available from respectively 2017 and 2018 onwards

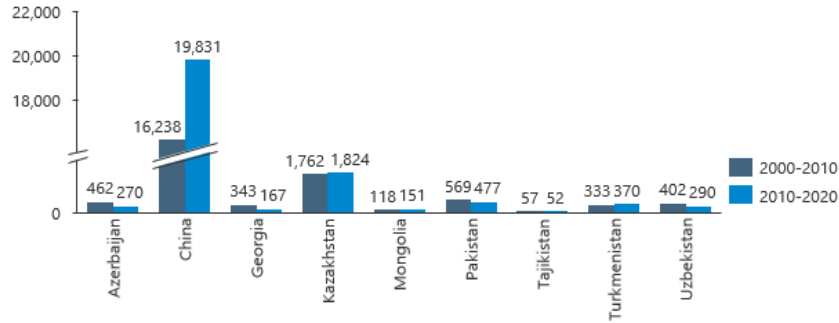
Source: UIC Database

- Passenger operations are **loss-making** in most CAREC countries, being cross-subsidized by profitable freight services.
- Competitive constraints on freight tariffs deplete rail sector financial capacity, **limiting borrowing** for the purchases of new rolling stock.

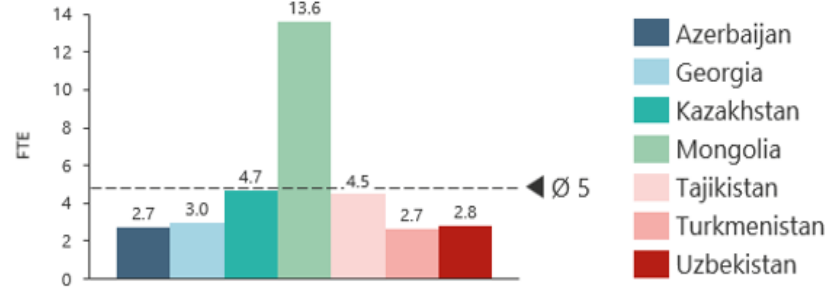
High-Level Demand And Efficiency Analysis (3/3)

Locomotives

Dynamic of locomotive numbers in CAREC countries (2000-2021)



Train drivers per locomotive
In FTE per country



- According to UIC data average **number of locomotives has declined** throughout the CAREC region except for China, Kazakhstan and Turkmenistan.
- Number of **professional train drivers and maintenance staff** may be an issue. Train drivers are crucial for making best use of infrastructure and locomotives.
- In **Azerbaijan, Georgia, Uzbekistan and Turkmenistan**, there may be a **lack of engine drivers** to make best use of their existing locomotives. This lack should be addressed prior to the purchase of new rolling stock.

Overview of Rolling Stock Manufacturers



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Overview of Rolling Stock Manufacturers: Russians

Russian manufacturers are losing influence in the CAREC region.

- Russian rolling stock manufacturers have **dominated the rolling stock supply** to the CAREC countries for decades.
- Close political and economic ties, geographical proximity, **shared technical, institutional and infrastructural peculiarities**, including the **1,520 mm-broad gauge** make this region attractive for Russian rolling stock producers.
- Russian exports of rolling stock to the CAREC member countries have been represented by the following **top 5 manufacturers**: Transmashholding, Sinara-Transportation Machines, United Wagon Company (UWC), Uralvagonzavod, and Altaivagon.
- Russia's invasion of Ukraine has altered this status-quo making manufacturers like UWC and Uralvagonzavod to shift to the **production of military equipment**.
- Russian producers were challenged by **supply chain disruptions and shortage of parts and equipment** caused by the sanctions. The market has stabilized for now, but challenges lie ahead.
- However, currently Russian manufacturers are **ceding their positions** to European and Asian counterparties, particularly Chinese manufacturers such as CRRC.

Overview of Rolling Stock Manufacturers: Europeans and Americans

European and American rolling stock manufacturers have captured respective market segments in CAREC region.

- Despite the dominant presence of the Russian producers, Wabtec, Alstom, Talgo and others have captured new markets by offering new innovative solutions and high-quality rolling stock.
- **Talgo** supplied high-speed Talgo-250 Afrosiyob trains to Uzbekistan and established a passenger wagon manufacturing **JV Tulpar - Talgo** in Kazakhstan until it was sold to Stadler in 2020.
- **Stadler Rail** has a production facility in Kazakhstan and will be manufacturing passenger coaches for KTZ. KTZ, Stadler's strategic partner, has signed the **€ 2.3 billion contract** for the delivery of 537 sleeper and couchette coaches.
- **Alstom** is present in Kazakhstan since 2010 and has established a **significant industrial base** with over 1,000 employees. Alstom is the only manufacturer of electric locomotives and point machines in the region, with 11 sites in 6 cities throughout the country.
- **Wabtec** is planning to increase its locomotive production in Kazakhstan since KTZ has purchased 240 locomotives from the manufacturer to renew 15% of its locomotive fleet. One of four global optimization centers is also located in Kazakhstan (LKZ).

Overview of Rolling Stock Manufacturers: Asians

Asian rolling stock manufacturers such as CRRC are expanding their business to the CAREC region.

- **CRRC** has entered the Central Asian market in 2004 and has since then provided 473 diesel locomotives of various types, becoming an important force in promoting railway transportation in Central Asia:
 - **Turkmenistan**: CRRC supplied 281 units of rolling stock including high-power diesel passenger, freight and shunting locomotives since 2004. These locomotives undertake about 95% of the local railway freight and passenger traffic.
 - **Pakistan**: CRRC has supplied 63 units of locomotives to Pakistan Railways → increase in railway operations at an annual rate of 30%, and an improvement in punctuality rate of passenger trains from 42% to 77%.
 - **Kazakhstan**: CRRC has signed a **\$1.3 billion contract** to supply up to 200 mainline and shunting locomotives to KTZ. The contract also commits CRRC to build a locomotive **assembly plant** in Kazakhstan.
- UTY has signed a contract to purchase **six high-speed trains** from **Hyundai Rotem**.

Overview of Rolling Stock Manufacturers: Locals

There is an uprising trend for local rolling stock manufacturing.

- CAREC member states have increased their own rolling stock manufacturing capacities, promoting comprehensive state programs aim at development of national railway industries. Most of the newly established production sites are located within the perimeters of on the former rolling stock maintenance and repair depots.
- **Uzbekistan** put significant effort in increasing capacity for the production of spare parts, equipment, machinery for the rolling stock and the rolling stock itself (Tashkent Passenger Car Construction and Repair Plant, Andijan Mechanical Plant, the Foundry-Mechanical Plant).
- In **Kazakhstan**, the growth of freight turnover has triggered the domestic demand for the rolling stock manufacturing plants: ZIKSTO, Kazakhstan Wagon Building Co., Cool Infinity refrigerator producer, and locomotive producers: Lokomotiv Kurastyru Zauyty (LKZ), Electric Locomotive Assembly Plant.
- **Georgia** has a full cycle Holding of Car Manufacturers of Georgia – a range of manufacturing facilities that repair, maintain and produce freight and passenger wagons.
- **Other CAREC countries** have repair and maintenance facilities, but still lack production plants.

Overview of Existing Rolling Stock Financing Forms



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Overview of Existing Rolling Stock Financing Forms

There is an abundance of accessible and affordable rolling financing options in CAREC region.

- **Use of financing instruments** for the rolling stock purchases in CAREC depend on:
 - Type of rolling stock (locomotives, freight wagons, passenger cars)
 - Manufacturers' country of origin.
 - Ability of the national railway operators to obtain state support in arranging loans.
- The **3 distinct types of financing** tend to be:
 - Vendor-arranged facilities backed by credit-export agencies (ECAs) and bilateral official development assistance (ODA) loans from government-backed funds: .
 - Commercially priced corporate loans (private sector loans) and leasing schemes and asset-based instruments, sometimes blended with state-funded facilities.
 - Sovereign (concessional or non-concessional) loans from international financial institutions (IFIs).

Overview of Existing Rolling Stock Financing Forms

There is an abundance of accessible and affordable rolling financing options in CAREC region.

- **ECAs and ODA:**

- Most commonly used form of financing – cheapest and therefore most competitive option.
- State-owned financing institutions provide high degree of reliability.

- **Commercial Banks:**

- Most flexible terms, sufficient sector experience and direct ties with manufacturers.
- Banks often participate in state programs, supporting local business, which allows banks to blend own funds with subsidies or concessional loans from the state budget.

- **IFIs:**

- Flexible financing terms (incl. subsidized lending).
- Grants for technical assistance.
- Focus on enterprise restructuring and private sector investment when providing financing.

Institutional Setup Specific Implications For Uzbekistan

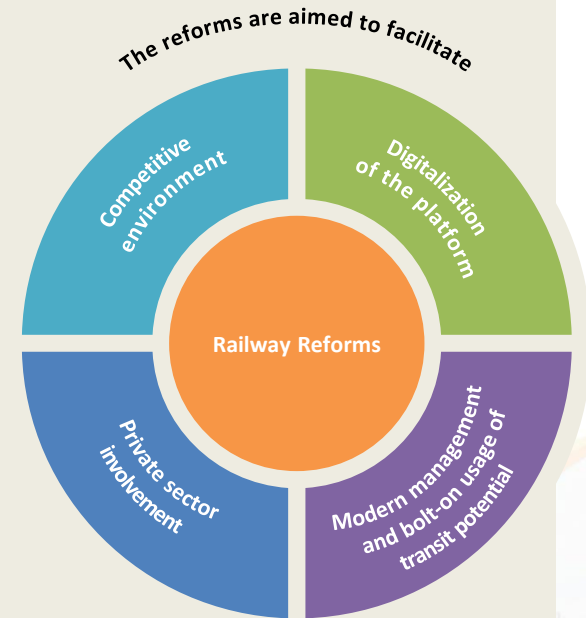


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Railway Reforms in Uzbekistan (1/2)

The Presidential Resolution No. PP-329 dated 10 October 2023 On Measures for Radical Reform of the Railway Transportation Sector of Uzbekistan is an ongoing railway sector transformation..

- Attract investments in the transportation process by creating an attractive investment climate.
- Accelerate the transformation and digitalization of the railway sector.
- Strengthen financial position of railway enterprises by reducing costs of freight transportation.
- Ensure that business entities have the right to freely choose railcar operators providing rail transportation services.
- Create opportunities for independent development of areas with high economic and financial potential.
- Radical improvement of the corporate governance system in railroad companies.



Railway Reforms in Uzbekistan (2/2)

High-level road map

Cease discounts on local, export, and import railway freight tariffs (excluding discounts granted through agreements with railway administrations of two or more foreign countries).

Within 3 months



Ministers are to propose a program to the Cabinet for modernizing UTY and its enterprises, developing railway infrastructure, and renewing the locomotive and wagon fleet.

From Jan. 2024

End state tariff regulation for freight car, container services, and high-speed passenger transportation, transitioning to market-based tariff regulations.

From Jan. 2025

Commence compensations for losses in local route passenger transportation (excluding high-speed trains) and discounts on freight rail services as per Cabinet of Ministers' resolutions, utilizing State Budget funds.

Public-Private Partnership for Rolling Stock Financing

Current limitations in the Uzbek PPP law need to be amended to improve private sector participation in the railway sector.

In order to allow proper implementation of the PPP modality in railway sector for the acquisition of the rolling stock in Uzbekistan, it is necessary to formulate and approve a distinct regulation specifically addressing PPPs.

Industry Accessibility

Uzbek law must allow certain areas of railway transport (including transporting process) to be developed/purchased under PPP.



Current PPP legislation doesn't allow rolling stock procurement.

01

Law on Railway Transport

Need to be amended, to grant an ownership access to the rolling stock platform.



Current law considering only state ownership of railway transport facilities, infrastructure, including rolling stocks.

02

Mandatory Conditions, Policies, and Other Factors



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Access to Infrastructure

There is a need to establish rules and charges for the Access to Infrastructure.

- Most CAREC countries have introduced legislation that allows access to infrastructure. **However, the apparent lack of private sector presence demonstrates their deficiencies.**
- To **attract private operators, access rules need to include fair and efficient mechanism** for infrastructure allocation, charging and usage, which would benefit passenger & freight transportation.
- For an investment-inducive environment, the access mechanism should clearly define:
 - The nature of the railway infrastructure available to railway undertakings and the conditions for accessing it.
 - The charging principles, including likely changes over the next five years.
 - The principles and criteria for capacity allocation, e.g. rolling stock characteristics and restrictions, access provision procedures and deadlines.
- **Timeframes should be long-term** enough to allow for the return of capital expenditures plus a profit. **Charges must be set in a fair** manner to allow competition between different transport modes.
- **The mechanism should define the rights and obligations** of the railway infrastructure manager and those of the applicants in relation to the allocated infrastructure capacity.

Market-oriented tariffs

There is a need to set market-oriented tariffs.

- **Existing tariffs are adjusted as part of the governments' budgetary process** → falling below cost recovery levels for freight and passenger services → **deterioration in national railway operators' finances**. Rigid, uncompetitive freight rates **deter private operators** making road transport a preferred option.
- CAREC members need to implement a policy of cost-identification and market-oriented tariff adjustments, as result **tariff regulation needs to be:**
 - Independent, transparent, predictable and streamlined.
 - Based on the best practices in railways tariff setting.
 - Use reliable, detailed industry data and analytics, as well as appropriate benchmarking.
 - Reduce tariff distortions and eliminate cross subsidies.
 - Reflect the cost of carbon emissions.
 - Establish clear subsidy rules, incl. criteria for eligibility, sources of funding, basis for forecasting.

Independent Regulator

There is a need to establish an Independent Regulator.

- **Rail transport is generally dominated by the state** → temptation for governments to use commercial and technical regulation to suppress rail tariffs and favor the state-owned market players.
- Railway sector is perceived as having a number of certain risks by the investors, including the lack of legal and regulatory framework, weak corporate governance and state dominance.
- There is **a need for creating a policy and legal environment** that protects the interests of all players and investors in the railway sector.
- **Governments can mitigate these risks by creating an independent institution** for regulating commercial, technical and safety aspects of railway operations, that is governed by objective, reliable, compensatory rules that do not discriminate between public and private suppliers of similar services.

Mid- and Long-Term Vision and Plan

It is necessary to devise Mid- and Long-Term Vision and Plan.

- According to the World Bank's Toolkit for Improving Rail Sector Performance, **governments should develop a roadmap for the required changes:**
 - Identify essential public services that must be retained.
 - Identify a desired industry structure and a preliminary plan to achieve it.
 - Determine what extent of private control is permitted in the infrastructure.
 - Develop required legal and regulatory environment.
- **A long-term strategy for the entire railway sector** is a critically important document for unlocking the sector potential, to serve as a guidance for decision-makers in terms of the depth and breadth of the private sector participation and PPP potential.

CAREC Green Rail Facility Concept



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CAREC Green Rail Facility: Mission

- **Financing Vehicle Mission:** To support sustainable development of rail transport in CAREC member states by helping them to renew and modernize their freight and passenger rolling stock.
- The CAREC **Financing Facility will aim to formulate bankable investment projects and mobilize the large requisite resources** by screening project options, performing prefeasibility studies, or validating existing prefeasibility studies.
- **CAREC countries will work to prioritize railway projects that are:**
 - Economically and financially viable.
 - Significantly facilitate cross-border freight.
 - Encourage private sector participation.
 - Complement wider institutional and regulatory reforms in individual countries.

CAREC Green Rail Facility: Vision

- CAREC Green Rail Facility will provide **green, transformative and catalytic financing** for **rolling stock acquisition and modernization**.
- Facility will be **available** for national rail operators, infrastructure managers, transport authorities, private and national rolling stock owners.
- Facility is designed to **unlock climate innovations and investments** in low emission, climate-resilient transport systems with **5 strategic aligned pathways**:



CATALYTIC



TRANSFORMATIVE



GREEN AND
SUSTAINABLE



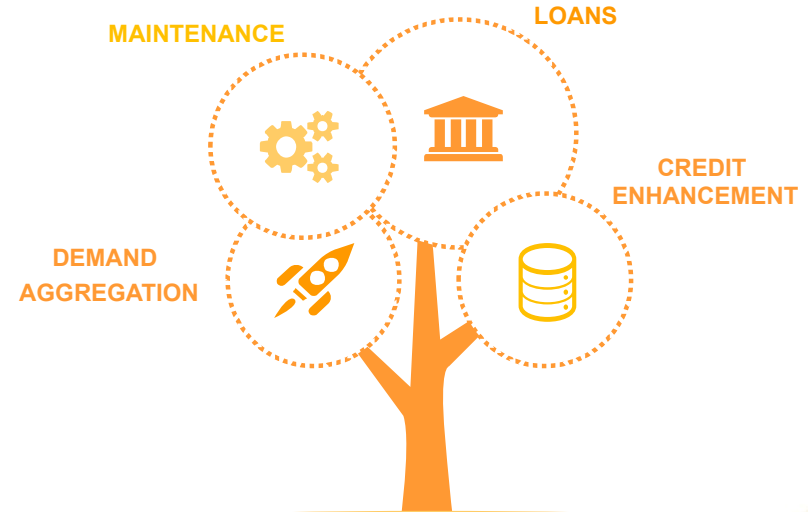
FACILITY



KNOWLEDGE AND
CAPACITY
BUILDING

CAREC Green Rail Facility: Main Features

- **Financing Vehicle Features:**
 - **Demand Aggregation:** Facility will match CAREC countries' demand for rolling stock with rolling stock producers' offers and increase collective bargaining power to achieve better prices.
 - **Provision of loans:** Facility will support sustainable investment projects through provision of loans.
 - **Provision of Credit Enhancement and guarantees** to increase bankability, financial feasibility and facilitate risk-sharing and mitigation.
 - **Financing the maintenance and repairs** for the rolling stock purchased in bulk can also be easier for the member states.



CAREC Green Rail Facility: Eligibility Criteria

- **Facility will have the following eligibility criteria:**
 - **Location:** applicants and projects must be located in the **CAREC Region**.
 - **Focus on the rolling stock:** proposed project must be focused on freight and passenger rolling stock modernization or acquisition.
 - Rolling stock for the over-riding objective of **fossil fuels transportation** is likely to be **excluded**.
 - **Investment size:** Investment range would be decided at the later stages.
 - **Revenue generating:** submitted proposals must prove to be **revenue-generating** and meet minimum **economic and financial viability** criteria.
 - **Demonstrate clear linkages to SDG goals and indicators:** project proposals need to have **positive environmental impact** and show how they contribute to the **attainment of the SDGs**.

CAREC Green Rail Facility: Project Cycle

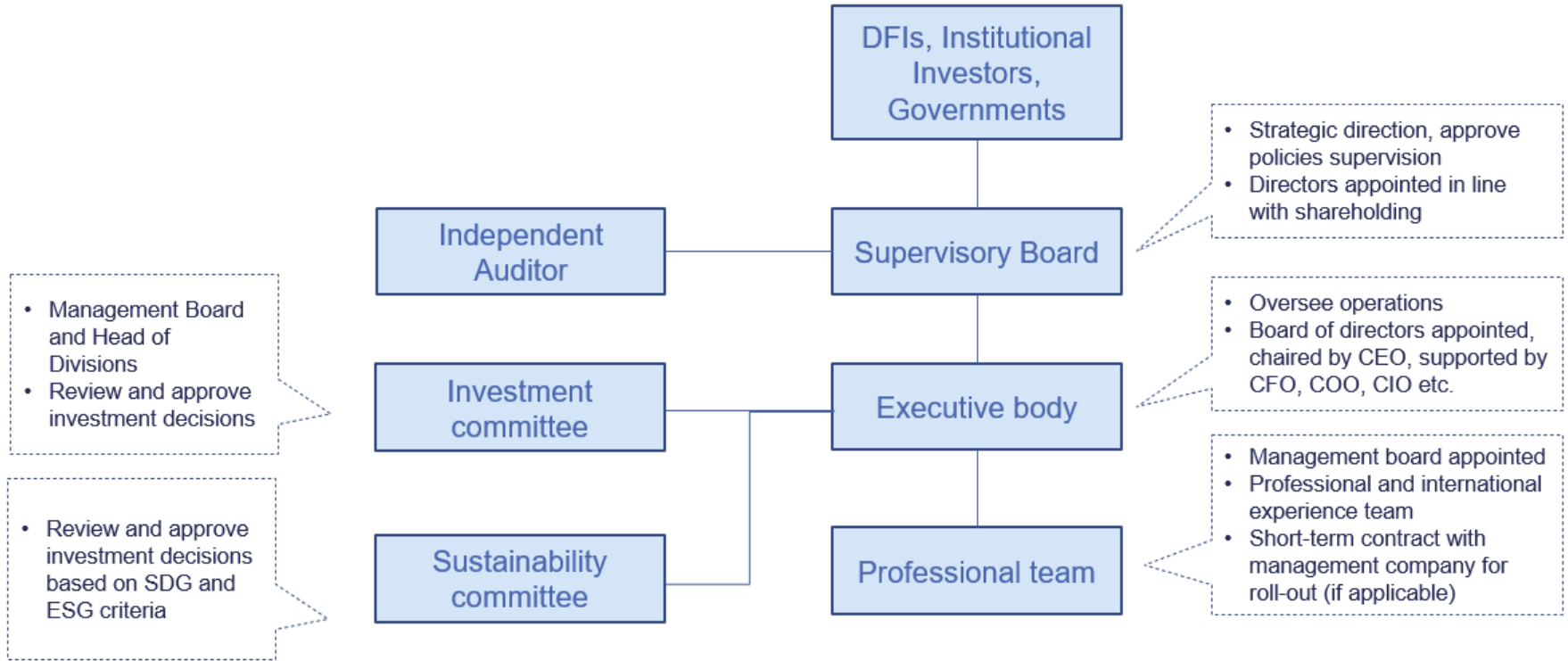
- Facility will have **comprehensive 6 step project selection, implementation and monitoring process** designed to meet the following objectives:
 - Align with **needs and priorities** of CAREC and its members.
 - Contribute to **CAREC strategic objectives**.
 - Meet **high quality standards** through **rigorous assessment**.
 - Achieve expected **goals and outcomes**.



CAREC Green Rail Facility: Funding Sources

- **Equity capital** – can be provided by IFIs as well as domestic banks and financial institutions.
- **Loan capital** – Facility may acquire the funds for its lending by borrowing senior debt.
- **Green Bonds issuance** – Facility may consider issuing Green Bonds to **access financing at a lower cost** and helping to connect **SDGs and ESG considerations** to investing.
- **Development agencies** -Facility can also attract co-financing commitments from MDBs and IFIs active in the CAREC region:
 - Asian Development Bank.
 - European Development Bank.
 - International Financial Corporation.
 - FC KFW Entwicklungsbank (KFW Development Bank).
 - European Investment Bank.
 - Agence Française de Développement (French Development Agency).
 - Green Climate Fund.

CAREC Green Rail Facility: Organizational Structure



Roadmap for Private Sector Participation



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Roadmap for Private Sector Participation (1/4)

Initiative 1. Establish an independent regulator

- There is a need for an independent railway sector regulatory body to be established in Uzbekistan:
 - Ensure a **fair** and **non-discriminatory access** to the rail network and services for all sector players
 - Create a **level playing field** for UTY and its entities after the planned sectoral reforms
 - Encourage **emergence** of private rolling stock operators.
- Clear division of tasks between the government as policy maker, UTY , infrastructure and service providers, and the Independent Regulator as a watchdog is necessary.

Timing: Mid-term

Priority: Important



Roadmap for Private Sector Participation (2/4)

Initiative 2. Develop Climate Related KPIs to tap into green financing

Sustainable KPIs will:

- **Improve access** to green bonds and sustainable finance instruments.
- Acquire efficient and **environmentally friendly locomotives**, modernize and replace diesel fleet.
- Create a **robust reporting system** to track railway and rolling stock performance to monitor and evaluate strengths and weaknesses.
- Compare **environmental performance** of railways and green rolling stock against other transport modes.
- Monitor rail transport share of renewable, energy consumption, CO2emissions, air pollution, noise exposure, energy sources and land take.

Timing: Mid-term

Priority: Important

Roadmap for Private Sector Participation (3/4)

Initiative 3. Enhance operational efficiency through digitalization

- Digitalization across the railway sector is **low**, but it can have **a major positive impact** on the sector by **enhancing** strategic decision-making, operational efficiency and costs optimization.
- Digital initiatives can include:
 - Electronic freight transport information (precise real-time location of rolling stock, load monitoring, alert on delays) and digital corridor information systems to facilitate data sharing.
 - Remote monitoring, real-time diagnostics of rolling stock and critical infrastructure to facilitate monitoring, maintenance and repairs.
 - Mobile applications providing ticketing, timetables and real-time information, onward journey planning, and infotainment. Travel data can be used by UTY to tailor its passenger services.

Timing: Mid-term

Priority: Very Important

Roadmap for Private Sector Participation (4/4)

Initiative 4. Introduce changes to the legislation to allow acquisition of the rolling stock under the PPP

- Existing legislation **does not allow** rolling stocks procurement under the PPP modality in Uzbekistan.
- To allow procurement of the Rolling Stock under the PPP modality in Uzbekistan:
 - A **separate regulation** on PPPs in railway sector needs to be developed and adopted to allow procurement under the PPP for various freight and passenger locomotives and wagons.
 - Include necessary **amendments** to the Law on Railway Transport to allow for the private ownership of rolling stock.

ADB action pillars: Pillar 1 (advocacy and capacity development) and Pillar 2 (enabling environment).

Timing: Short-term

Priority: Important

Towards the Facility: Next Steps

Next Steps



Early Involvement: discuss the Interventions with ADB sector and country teams, the Government of Uzbekistan, development partners.



Early Planning: select the most actionable Initiatives that have potential to catalyze funds and include in ADB, CAREC and URM pipelines.



Develop Action Plans: coordination and collaboration with all stakeholders.



Implement.

Overview of Existing Rolling Stock Financing Forms

Case Studies (1/2)

Uzbekistan (locomotives)

- ADB has supported Uzbekistan Temir Yu'llar in acquisition of 30 electric freight and passenger locomotives from CRRC by providing a US\$ 170m loan with a 25-year tenor and a 5-year grace.
- Exim bank of China has covered UTY's contracts with Chinese producers (CSR Zhuzhou, CNTIC and CNR DLRC) for the procurement of passenger and freight locomotives.
- UTY's contract with Skoda announced in October 2023 is to be financed by loans from Czech commercial banks, in the amount of EUR 350m at 5.5% per annum for 15 years.

Kazakhstan (locomotives)

- Supply of locomotives to KTZ by Alstom (France) has been financed by the Société Générale & Natixis under BPI France ECA (terms: EUR 627m, 6-month Euribor + 1.15%, 14 years).
- US Exim Bank provided a direct loan to KTZ to support the project with GE Transportation purchase on the assembly of 196 Evolution series locomotives.

Azerbaijan (locomotives)

ADY deal with Alstom has been financed from a consortium of Société Générale, BNP Paribas and the French branch of HSBC, financing amount - EUR 288m.

Mongolia (locomotives)

Bank for Economic Co-operation (Russia-led IFI) has provided a loan to UBTZ for the purchase of locomotives produced by the Transmashholding, financing amount EUR 40m, period of 11 years, with the insurance coverage by EXIAR.

Pakistan (locomotives)

Supply of 230 high-speed passenger trains to Pakistan Railways by CRRC has been funded through a Chinese loan under the Belt & Road Initiative.

Overview of Existing Rolling Stock Financing Forms

Case Studies (2/2)

Freight wagons

- Before the Russian invasion to Ukraine, there were various forms of ECA financing from VEB.RF and Roseximbank, who actively supported Russian rolling stock producers with export facilities.
- IFIs also play an important role in freight wagons purchases. For instance:
 - ✓ The EBRD has financed rolling stock purchases, mostly in the form of asset-based corporate loans to a handful of private rolling stock operators in Kazakhstan.
 - ✓ Under Belt & Road Initiative, China has pledged to extend a loan for Pakistan's for procurement and manufacture of 820 high-capacity bogie freight wagons and 230 passenger coaches.
 - ✓ Kazakhstan's development institution - Damu Entrepreneurship Development Fund established a state program of subsidizing interest rates, which has widely benefited the freight wagon purchases by private entities in the country.

Passenger wagons

- Passenger rolling stock is mostly financed by the national operators via public funds or equity.
- In case of private operators, railcars are financed via corporate loans, for instance:
 - ✓ KTZ has been received US\$ 340m of public funds from the state budget and Samruk-Kazyna for deal with Stadler (supply 234 sleeper carriages, 233 couchette carriages, 35 staff coaches and 35 generator cars), for 30 years at 0.05% per annum.
 - ✓ BRK-leasing has supported KTZ Passenger Transportation to acquire 62 passenger wagons produced at Tulpar-Talgo facilities.
- Other CAREC countries have purchased very small and limited batches of passenger wagons. Financing options and details are rarely mentioned for such deals.